## Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1. (currently amended): A decentralized control system, comprising:

a plurality of processors;

a plurality of devices controlled by said plurality of processors; and

at least one information transmission path for communicating control information between said plurality of processors and for communicating input/output information between said plurality of processors and the devices,

wherein each at least one of said plurality of processors comprising comprises:

processor detecting means for detecting a connection state of each of said plurality of processors with respect to the information transmission path, said connection state showing which processors of said plurality of processors are connected for controlling the plurality of devices, and being represented by an ID of each of said processors;processors,

wherein said processor detecting means generates a list of available processors,

wherein at least one of said plurality of processors comprises:

program block assigning means for assigning, based on the detected connection state detected by said processor detecting means, a plurality of mutually concurrently executable program blocks to control the device to each of said plurality of processors, respectively,

wherein said program block assigning means dividing divides a program for controlling said devices into said mutually concurrently executable plurality of blocks allowing uniform assignment of a processing load to the processors in accordance with an average number of execution steps or an average processing time for one cycle of each of the plurality of program blocks, said assigning means generates an assignment list, and distributing distributes the assignment list and said mutually concurrently executable plurality of blocks to said processors; and

program storage means for storing a relevant one of the plurality of mutually concurrently executable program blocks at the each of said plurality of processors, each of said plurality of processors executing the stored relevant program blocks, respectively, and

wherein each of said plurality of processors distributes said mutually concurrently executable plurality of blocks and said assignment list, and executes the program blocks based on said assignment list.


2. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein said plurality of processors are beforehand assigned with priority levels beforehand, and

wherein a particular processor selected in accordance with the priority level from available processors detected by the processor detecting means assigns by the program assigning means processing of the program blocks respectively to said plurality of processors.

3

3. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein each of said plurality of processors detects by the processor detecting means thereof available processors connected to the information transmission path and assigns by the program assigning means thereof processing of the program blocks respectively to said plurality of processors.

4. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein each one of said plurality of processors generates by the program block assigning means an allocation table in which the program blocks are subdivided into several groups to be respectively assigned to said plurality of processors, and sends the table to each of said plurality of processors together with all program blocks.

5. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein each one of said plurality of processors subdivides by the program block assigning means the program blocks into program block sets each including several ones of the program blocks and assigns the program block sets respectively to said plurality of processors, and sends the program block sets respectively to said plurality of processors.

6. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein the processor detecting means includes:

means for multicasting via the information transmission path a connection state of its own processor with respect to the information transmission path, the means including the processor detecting means; and

means for generating, in accordance with connection states sent via the information transmission path from other processors, a list of available processors connected to the information transmission path.

7. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein either one of said plurality of processors detects by the processor detecting means, when the connection state of either one of said plurality of processors is changed in the decentralized control system or either one of said plurality of processors fails when the decentralized control system is in operation, available processors and assigns by the program block assigning means processing of the plural program blocks to the available processors.

8. (currently amended): [A] The decentralized control system in accordance with Claim 1, wherein:

wherein the information transmission path includes two channels, namely, a control information transmission path for communicating the control information and an input/output information transmission path to communicate the input/output information.

9-16. (canceled).

5

17. (currently amended): [A] The decentralized control system in accordance with Claim 1,

wherein each of numbers of instructions of the mutually concurrently executable program blocks to be assigned to each of the processors are made substantially equal.

18-21. (canceled).